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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/690,750 | 10/23/2003 | Yoshiaki Kato | N9460.0017/P017 | 8360 |

24998 7590 04/18/2005

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EXAMINER

VANORE, DAVID A

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2881

DATE MAILED: 04/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/690,750

Applicant(s)

KATO, YOSHIAKI

Examiner

David A. Vanore

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 April 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 10-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-9 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Election/Restrictions

Applicant's election without traverse of claims 1-9 in the reply filed on April 4, 2005 is acknowledged.

Claims 10-27 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on April 4, 2005.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims rejected under 35 U.S.C. 102(b) as being clearly anticipated by Fujimaki (Japanese Patent Application 2000-246989) cited by the Applicant.

Regarding claim 1, Fujimaki teaches a mass analysis device comprising a first ion source (1) which ionizes a sample to produce ions and a second ion source (10) which produces ions of opposite polarity. In the instant case, the first ionization source of Fujimaki produces a cation while second ionization source produces an anion, note paragraph 15 of Fujimaki. Fujimaki further teaches a mass spectrometer coupled to the ion sources (not shown in Fig. 1), where the second ion source is provided between the first ion source and the mass spectrometer where the mass spectrometer is positioned beyond an orifice (5) in Fig. 1.

Regarding claim 2, Fujimaki teaches that both ion sources 1 and 10 operate at atmospheric pressure. (Note Paragraph 4 and Paragraph 16).

Regarding claim 3, the first ion source of Fujimaki is an electrospray ionization source (Paragraph 4).

Regarding claim 4, the second ion source is an atmospheric pressure chemical ionization ion source (Paragraph 16).

Regarding claim 5, the second ion source of Fujimaki depicted in Fig. 2 comprises a conductive metal shield electrode (11), a corona discharge electrode or needle (15), an opening to emit generated ions (12), and a power source (16) to supply a potential to the discharge electrode (15).

Regarding claim 8, the second ion source comprises an inlet (14) for introduction of ion generating accelerating compounds (Paragraph 18).

Regarding claim 9, Fujimaki teaches the introduction of ion generation where the compound introduced comprises OH groups, as pointed out in paragraph 18. OH groups are alcohol groups and therefore Fujimaki anticipates the claimed limitation.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimaki.

Fujimaki teaches all the required limitations as pointed out above in regards to claim 5, but fails to teach that the shield electrode (11) is electrically grounded.

Both the instant invention and that of Fujimaki disclose a second ion source comprising a corona discharge needle surrounded by a metal electrode.

Grounding a metal shield electrode subjected to an electrical field inside the shield for preventing induction of an interior surface charge is a known consequence or the physical laws governing electrostatics, note for example Michael Faraday's "Ice Pail" experiment.

In operation, the corona discharge has applied thereto a high electrostatic potential. When both the prior art discharge needle and that of the instant invention have a metal shield electrode surrounding a discharge means having a high potential applied thereto, the potential applied to the needle necessarily creates an electrical field within the confines of the metal shield electrode. This field would therefore cause an induced opposite surface charge to accumulate on the interior of the metal shield electrode and attract ions created by the ion source at the corona discharge needle, thereby diverting created ions from their intended path.

The grounding of the metal shield electrode of Fujimaki therefore would prevent the induction of an interior surface charge and eliminate an induced interruption in the path of generated ions.

It would have been obvious to one having ordinary skill in the art at the time the invention was made would ground the metal shield electrode of Fujimaki because it is advantageous in an ion source to discharge ions along a desired path. Failing to

ground the shield electrode of Fujimaki would result in created ions being attracted to and accumulated on the interior of the metal shield electrode of Fujimaki.

Allowable Subject Matter

Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 6, the most relevant prior art to claim 6 is that of USPN 6,649,907 B2 to Ebeling et al. The reference discloses an embodiment where a corona discharge ion source comprises a metal mesh shield electrode, as illustrated in Fig. 4 for example. However, this does not provide a suitable teaching towards claim 6. Claim 6 requires a shield electrode and an opening covered in metal mesh. The prior art teaches a single shield electrode where the shield is a metal mesh. Therefore, the reference does not anticipate the claim. Given the differences between the prior art and that recited in claim 6, there is no teaching or suggestion in the prior art towards the limitations of claim 6.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

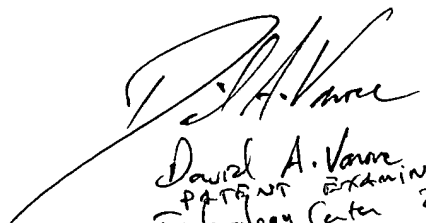
The examiner further cites USPN 6,583,409 B2 to Kato which disclose a dual ion source mass analysis apparatus.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Vanore whose telephone number is (571) 272-2483. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (571) 272-2477. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

dav



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PATENT EXAMINER
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